

REMARKS/ARGUMENTS

Claims 1-14 were previously pending in the application. Claims 1, 9, 10, and 12 are amended, and claim 13 is cancelled herein. Assuming entry of this amendment, claims 1-12 and 14 are now pending in the application. The Applicant hereby requests further examination and reconsideration of the application in view of the foregoing amendments and these remarks.

In paragraph 2, the Examiner rejected claims 1-3, 5, and 7-10 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,748,222 ("Hashem") in view of U.S. Patent Application No. 2002/0119784 ("Agin") and further in view of <http://www.soulinfo.com/~hugang/3gpp/specs/25413-320.pdf> ("3GPP"). In paragraph 3, the Examiner rejected claims 4 and 11 under 35 U.S.C. 103(a) as being unpatentable over Hashem in view of Agin and 3GPP, and further in view of U.S. Patent Application No. 2003/0125039 ("Lachtar"). In paragraph 4, the Examiner rejected claim 6 under 35 U.S.C. 103(a) as being unpatentable over Hashem in view of Agin and further in view of 3GPP and U.S. Patent Application No. 2003/0072282 ("Liang"). In paragraph 5, the Examiner rejected claims 12 and 13 under 35 U.S.C. 103(a) as being unpatentable over Lachtar in view of U.S. Patent No. 6,069,871 ("Sharma"). In paragraph 6, the Examiner rejected claim 14 under 35 U.S.C. 103(a) as being unpatentable over Liang in view of Agin and further in view of Hashem.

For the following reasons, the Applicant submits that claims 1-12 and 14 are allowable over the cited references.

Claim 1 has been amended to recite, *inter alia*, the steps of: "(b) determining whether the message is (i) a call set-up message from the user element or (ii) an allocation message from one of the processors;" and "(c2) if the message is an allocation message, then allocating a set of spreading codes to the connection with the same spreading factor and sending the set of spreading codes to a call-processing application on the processor that sent the allocation message." Therefore, this claim requires that the call set-up message be from a user element and that an allocation message be from one of the processors. While the Examiner cites to pp. 17-20 of 3GPP as teaching means for "determining whether the message is a call set-up message or an allocation message," no such determination is ever made in 3GPP, because 3GPP's Radio Access Bearer (RAB) establish message, which is received from a RAB (i.e., a user element), is actually a call set-up request and a resource allocation request in a single message (p. 17). Since the call set-up and resource allocation requests are both generated by a RAB, 3GPP does not teach, in this context, "an allocation message from one of the processors," as recited in step (b) of claim 1. Not only does 3GPP fail to teach a determination whether a message is a call set-up message or an allocation message, but 3GPP also fails to teach sending the set of spreading codes to a call-processing application on the processor that sent the allocation message, as recited in step (c2) of claim 1. Hashem and Agin fail to supply the missing teachings. Hashem discloses allocating processors to a connection in accordance with a load-balancing algorithm if a call set-up message is received, and Agin discloses allocating spreading codes to a connection if an allocation message is received. As argued previously, neither Hashem nor Agin discloses, teaches, or even suggests, either alone or in combination, a step of determining whether a received message is a call set-up message or an allocation message, let alone an allocation message from a processor. Nor do any of these references teach sending a set of spreading codes to a call-processing application on a processor that sent an allocation message.

For these reasons, the Applicant submits that claim 1 is allowable over the cited references. For similar reasons, the Applicant submits that claims 9 and 10 are also allowable over the cited references. Since claims 2-8 and 11 depend variously from claim 1, it is further submitted that those claims are also allowable over the cited references.

Claims 11 and 12

Claim 12, as amended, recites that one of the processors is allocated based on a call-context amount per CPU load-balancing algorithm, wherein “the call-context amount per CPU load-balancing algorithm comprises: determining an average number of calls per processor; weighting the average number of calls per processor by a total call capacity of the processor; and selecting the processor with the smallest weighted call average.” As explained in the specification, this algorithm “determines the average number of calls per CPU (= total calls / CPUs), and this average number is weighted by the total call capacity of the CPU. The CPU with the least weighted calls is then selected. Because the number of calls in the system is high (several thousand), the system load imposed by the calls averages out” (p. 7, lines 20-24). Neither Hashem, Agin, 3GPP, or Lachtar teaches, discloses, or even suggests, either alone or in combination, using such an algorithm. The Examiner argues that Lachtar teaches determining an average number of calls per processor and weighting the average number of calls per process or by a total call capacity of the processor, citing to sections 0031, 0032, and 0041, which read as follows:

[0031] Referring first to FIG. 8A, operation commences at step 802 wherein a BSC has received a request for radio link resources from an MSC for a specific CDMA cell. Such request is sent by the MSC in attempting to complete a call that was either initiated by a mobile unit or that is to be terminated to a mobile unit. Then, at step 804, the BSC serving the specific CDMA cell sends capacity estimate requests to all BTS's associated with the cell and starts a timer.

[0032] The queried BTS's determine and provide their respective net excess capacity NEC to the BSC. The queried BTS's may also optionally provide a stored net excess capacity threshold NEC_t, if desired. A suitable method for determining NEC is set forth, for example, in commonly owned U.S. Pat. No. 6,069,871, previously referenced which is incorporated herein by reference.

[0041] If step 816 results in an affirmative response, operations proceed to step 844, where a determination is made whether there is any responding BTS where the net excess capacity exceeds the net excess capacity threshold NEC_t. If so, operations proceed to step 846 where the BTS having a net excess capacity greater than the net excess capacity threshold is selected for the highest priority frequency where that condition is met. If more than one carrier frequency meets this condition, the carrier with the highest net excess capacity is selected. Operations proceed to step 848 where the requested radio link resources are then set up on the selected BTS and the procedure ended.

As can plainly be seen, none of the foregoing portions of Lachtar even mentions the determination of an average number of calls per processor, let alone weighting the average number of calls per process or by a total call capacity of the processor. In this rejection, the Examiner also cites to col. 8, lines 34-59 of Sharma, which reads as follows:

NEC—Net Excess Capacity. This is the maximum excess capacity of a BTS. It is calculated by taking into account EFC, ERC, (EFC)_{tr}, (ERC)_{tr}, ECE and EWC as follows:

First, translate ERC and EFC into number of additional radio links possible.

M=Number of current users served by the sector (cell).

N_r=Number of additional links possible before reverse link blocking is encountered=(N_{rev}(1-(ERC)_{tr})-M) where N_{rev}=M/(1-ERC)

N_f=Number of additional links possible before forward link blocking is encountered=(EFC-(EFC)_{tr})/P_{avg} where P_{avg} is the average power per user.

P_{avg}=(current total traffic channel transmit power/M)

N_c=Number of additional links possible before number of channel elements are exhausted=ECE

N_w=Number of additional links possible before number of walsh codes are exhausted=EWC

The maximum net excess capacity is limited by the minimum value of N_r, N_f, N_c, and N_w. For example even if N_r, N_f, and N_w are high but no channel elements are available i.e. N_c=0, the net excess capacity would be zero.

NEC=min (N_r, N_f, N_c, N_w)

(NEC)_t—Net Excess Capacity Threshold. This is the value above which the frequency is considered to be lightly loaded.

Just as with the Examiner's citations to Lachtar, none of the foregoing portion of Sharma even mentions the determination of an average number of calls per processor, let alone weighting the average number of calls per process or by a total call capacity of the processor. Nor do Hashem, Agin, or 3GPP supply these missing teachings. The Applicant submits therefore that no combination of the cited references can render obvious independent claim 12. For similar reasons, the Applicant submits that the foregoing provides additional reasons for the assertion that dependent claim 11 is allowable over the cited references.

Claims 6 and 14

Claim 14 recites that "the set of spreading codes depends on the number of legs for soft-handover/soft-handoff of the connection." The Examiner cites to section 0098 of Liang as teaching this feature. Section 0098 reads as follows:

[0098] When a mobile station is within a soft handover area, two or more base stations may transmit the same set of data symbols to such a mobile station simultaneously. Each base station employs a different set of long scrambling codes, and same or different set of short channelization codes. In the cell search process, the mobile station is able to acquire two or more sets of long scrambling codes relating to the base stations that are close to the mobile station. The mobile station then uses the spreading codes corresponding to each base station to recover data symbols transmitted from that base station. After that, all detected data symbols are finally coherently combined to provide a better detection performance for the mobile station.


Clearly, none of the foregoing portion of Liang teaches the use of a set of spreading codes that depends on the number of legs for soft-handover/soft-handoff of the connection. Nor do Agin, Hashem, or 3GPP supply these missing teachings. The Applicant submits therefore that no combination of the cited references can render obvious independent claim 14. For similar reasons, the Applicant submits that the foregoing provides additional reasons for the assertion that dependent claim 6 is allowable over the cited references.

The Applicant submits therefore that the rejections of claims under Section 103 have been overcome.

In view of the above amendments and remarks, the Applicant believes that the now-pending claims are in condition for allowance. Therefore, the Applicant believes that the entire application is now in condition for allowance, and early and favorable action is respectfully solicited.

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